

**Family list**

18 family members for:

**JP9195197**

Derived from 12 applications.

- 1 VERFAHREN ZUR HERSTELLUNG VON PAPIER**  
Publication info: **AT191026T T** - 2000-04-15
- 2 Papermaking process**  
Publication info: **AU2011897 A** - 1997-07-17
- 3 Papermaking process**  
Publication info: **CN1081705C C** - 2002-03-27  
**CN1205756 A** - 1999-01-20
- 4 PAPERMAKING PROCESS**  
Publication info: **DE69607394D D1** - 2000-04-27
- 5 PAPERMAKING PROCESS**  
Publication info: **DE69607394T T2** - 2000-07-27
- 6 PAPERMAKING PROCESS**  
Publication info: **EP0877120 A1** - 1998-11-11  
**EP0877120 A4** - 1999-03-03  
**EP0877120 B1** - 2000-03-22  
**EP0877120 B2** - 2006-06-21
- 7 PAPERMAKING PROCESS**  
Publication info: **ES2146920T T3** - 2000-08-16
- 8 PAPERMAKING**  
Publication info: **JP3218557B2 B2** - 2001-10-15  
**JP9195197 A** - 1997-07-29
- 9 PAPERMAKING**  
Publication info: **JP3219007B2 B2** - 2001-10-15  
**JP10140495 A** - 1998-05-26
- 10 PAPER MAKING METHOD**  
Publication info: **JP9176989 A** - 1997-07-08
- 11 PAPERMAKING PROCESS**  
Publication info: **PT877120T T** - 2000-08-31
- 12 PAPERMAKING PROCESS**  
Publication info: **WO9723691 A1** - 1997-07-03

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**PAPERMAKING**

**Publication number:** JP9195197  
**Publication date:** 1997-07-29  
**Inventor:** NAKAMURA TOMONORI; WAKAMATSU HIDEYUKI;  
SAKAMOTO HIDETOSHI  
**Applicant:** HYMO CORP  
**Classification:**  
**- international:** *D21H17/37; D21H17/45; D21H17/67; D21H17/68;  
D21H21/10; D21H23/18; D21H17/00; D21H21/10;  
D21H23/00; (IPC1-7): D21H17/37; D21H17/67*  
**- european:**  
**Application number:** JP19960019250 19960111  
**Priority number(s):** JP19960019250 19960111

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**Abstract of JP9195197**

**PROBLEM TO BE SOLVED:** To improve the yield an/or water filterability of paper in papermaking process by incorporating paper stock with a specific amphoteric water-soluble polymer followed by colloidal silica and/or bentonite. **SOLUTION:** First, a polymerization is conducted between 3-99mol% of a cationic monomer of formula I (A is O or NH; B is C<sub>2</sub>H<sub>4</sub>, C<sub>3</sub>H<sub>6</sub> or C<sub>3</sub>H<sub>5</sub>OH; R<sub>1</sub> is H or CH<sub>3</sub>; R<sub>2</sub> and R<sub>3</sub> are each a 1-4C alkyl; X<-> is an anionic counterion) or its mixture, 0-50mol% of a cationic monomer of formula II (A, B, R<1>-R<4>, and X<-> are each the same as described above) or its mixture, 1-30mol% of an anionic monomer, and acrylamide, etc., in an aqueous solution of salt such as ammonium sulfate in the presence of a dispersant consisting of a cationic polyelectrolyte such as polyacryloyloxyethyl trimethylammonium chloride to prepare an amphoteric water-soluble polymer. Thereafter, paper stock under paper manufacturing process is incorporated with the amphoteric water-soluble polymer followed by anionic colloidal silica and/or bentonite and then a papermaking operation is carried out.

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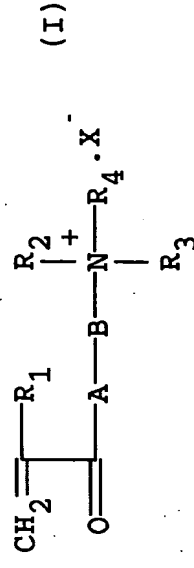
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97-351112/32 A97 F09 (A14) HYMO-95.12.25  
HYMO CORP \*WO 9723691-A1  
96.09.13 96JP-263774(+95JP-350035) (97.07.03) D21H 17/45  
Paper:making process providing high quality paper with high production rate - comprises adding ionic water-soluble polymer and anionic additive to pulp, and remarkably improves yield of raw material/filler and drainage rate (Jpn)  
C97-113513 N(AU BR CA CN KR MX NO NZ PL RU SG TR US)  
R(AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE)  
Addnl. Data: NAKAMURA T, WAKAMATSU H, SAKAMOTO H, TANAKA K  
96.12.24 96WO-JP03748, 96.01.11 96JP-019250

A papermaking process comprises adding an ionic water-soluble polymer to pulp, and then adding an anionic additive selected from anionic colloidal silica, anionic (co)polymer and bentonite, thus improving the yield of raw material/filler and the drainage rate. The process (1) comprises polymerising monomers, comprising:  
(A) water-soluble cationic vinyl monomer of formula (I) or a mixture of these (3 ~100 mol%);  
(B) water-soluble anionic vinyl monomers (0 ~30 mol%); and  
(C) water soluble nonionic vinyl monomers, in a salt aqueous solution,

A(12-W6) F(5-A6C, 5-A6D)

in which the monomers are dissolved and the produced polymers cannot be dissolved, in the presence of a dispersant comprising polymer electrolysis. The polymer electrolysis is dissolved in the above mentioned salt solution while stirring.



A = O or NH;

B = C<sub>2</sub>H<sub>4</sub>, C<sub>3</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>5</sub>OH;

R<sub>1</sub> = H or CH<sub>3</sub>;

R<sub>2</sub>, R<sub>3</sub> = CH<sub>3</sub> or C<sub>2</sub>H<sub>5</sub>;

R<sub>4</sub> = H, CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub> or benzyl gp;

X<sup>-</sup> = anionic ion-pairs.

#### ADVANTAGE

The process improves the yield of raw material/filler and the

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drainage rate. This process provides a paper having a high quality with a high productivity.

#### CLAIMED COMPONENTS

The salt contained in the above mentioned salt solution is a divalent anionic salt. The dispersant comprises 50 ~ 100 mol% of at least one cationic monomer such as dimethylaminoethylacrylate salt, dimethylaminoethylmethacrylate salt, dimethylaminopropylacrylamide salt, dimethylaminopropylmethacrylamide salt, 5 other salts or a mixture of these, and 0 ~ 50 mol% of cationic polymer electrolysis which is obtained by polymerizing acrylamide. The above mentioned ionic water-soluble polymer has a viscosity of 5 dl/g ~ 30 dl/g in 2 wt% ammonium sulphate.

The amount of the ionic polymer and the anionic additive used for this process are 0.001 ~ 0.05 wt% and 0.01 ~ 0.2 wt% per paper SS, respectively. The anionic additive is an anionic (co)polymer comprising acrylic acid (15 ~ 100 mol%) and acrylic amide (0 ~ 85 mol%). The ionic water-soluble polymer contains 1 ~ 30 mol% of water-soluble anionic vinyl monomer.

The anionic monomer is a monomer selected from acrylic acid, methacrylic acid, salts of these, itaconic acid, its salts, acrylamide-2-methylpropanesulphonic acid or its salt and a mixture of these. The

gram-equivalent number of water-soluble cationic monomer is greater than that of the water-soluble anionic vinyl monomer. The above mentioned ionic water-soluble polymer contains no water-soluble anionic vinyl monomer.

#### PREFERRED IONIC POLYMER

The amounts of the ionic polymer and the anionic additive used for this process are 0.001 ~ 0.05 wt% and 0.01 ~ 0.2 wt% per paper SS, respectively. The anionic monomer is acrylic acid.

A dispersed ionic polymer (200 ppm) obtained by polymerising a monomer mixture comprising acryloyloxyethylmethacrylamide, ammonium chloride (15 mol%) and acrylamide (85 mol%) and an anionic colloidal silica (300 ppm) additive were added to paper material SS and stirred. The total drainage of rate was 80.6 % and the filler drainage rate was 60.8 %, which are remarkably higher than those obtained in the conventional processes. (SN)  
(41pp1721DwgNo.0/0)  
SR:EP497030 JP4245998 UA5098520